
Chance Brook
New Hampshire

Webster Lake Dam Dam-Break Flood Delineations

July 1990



**US Army Corps
of Engineers**
New England Division

WEBSTER LAKE DAM
DAM-BREAK FLOOD ANALYSIS

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WEBSTER LAKE DAM
DAM-BREAK FLOOD ANALYSIS

1. PURPOSE AND SCOPE

This report is a continuation of a dam-break flood analysis, on the Webster Lake Dam, completed by the U.S. Army Corps of Engineers, dated March, 1986. The study's objective is to delineate and quantify the extent of the probable inundation flood area in the event of a dam-break failure, so that such information is available for use in emergency planning. This study was not performed because of any known likelihood of a dam-break at Webster Lake Dam. The dam is located in Franklin, New Hampshire. It is owned, operated and maintained by the Water Resources Board of New Hampshire. This study is limited to the accuracy of twenty-foot-contour mapping.

Delineations were continued downstream to a point at which the inundation from a dam-break approximates that of a one-hundred year storm event. The limits of this study are shown on Plate 3.

2. AUTHORITY

Authority for U.S. Army Corps of Engineers participation in this effort is sanctioned by Section 206 of the 1960 Flood Control Act (Public Law 86-645) which states:

"... The Secretary of the Army, through the Chief of Engineers, Department of the Army, is hereby authorized to compile and disseminate information on floods and flood damages, including identification of areas subject to inundation by floods of various magnitudes and frequencies, and general criteria for guidance in the use of floodplain areas and to provide engineering advice to local interests for their use in planning to ameliorate the flood hazard..."

3. DAM DESCRIPTION

Identification No.	NH00410
Name of Dam:	Webster Lake Dam (Chance Brook Dam)
City:	Franklin
County and State:	Merrimack County, NH
Stream:	Chance Brook

Webster Lake Dam is located in Franklin, New Hampshire approximately one mile southeast of the Webster Lake outlet (Plate 1). The dam is a 14 foot high concrete gravity structure with a 110 foot long sluiceway with stop-logs, and a four by four and one half foot gated sluiceway. Its maximum storage is 2,650 acre-feet. The stop-log bays are each approximately three and one half feet wide. The dam impounds water in Chance Pond and Webster Lake for recreational use. The downstream brook flows into the Pemigewasset River, which eventually discharges into the Merrimack River.

4. PERTINENT DATA

Data is taken from "Phase I Inspection Report" for Webster Lake Dam (Chance Brook Dam) dated August 1978.

a. Drainage Area

Webster Lake Dam, is located along Chance Brook, and impounds both Chance Pond and Webster Lake. The drainage area above the dam has rolling topography with an area of 19.5 square miles. The drainage area at Webster Lake is approximately 17.3 square miles.

b. Elevation (feet NGVD)

(1) Top of dam:	404.2
(2) Spillway crest:	398.6

c. Reservoir

(1) Length of recreation pool:	2.5 miles
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d. Storage (Acre-Feet)

(1) Top of dam:	2,650
(2) Spillway crest:	1,100

e. Reservoir Surface (Acres)

(1) Top of dam:	675
(2) Spillway crest:	575

f. Dam

(1) Type	Concrete gravity dam
(2) Length	133 feet
(3) Height	14 feet

g. Spillway

(1) Type	Concrete ogee
(2) Length of weir	110 feet
(3) Crest elevation	398.7 Feet NGVD

h. Regulating Outlets

The regulating outlets consist of a three bay sluiceway with stop-logs and a manually operated gated sluiceway.

The openings of the three bay sluiceway are 3.75 feet, 4.17 feet, and 3.75 feet wide, respectively with invert elevation 393.7 feet. The stop-logs in each bay are pulled and replaced by hand with lifting hook and only one or two boards can be so removed under head.

The gated sluiceway consists of a five foot square timber sluice gate which controls a four by four and a half foot concrete waterway opening. The invert of the opening is elevation 392.2 feet. The gate is operated by a pedestal mounted hand crank which is in a wood framed gate house.

5. DOWNSTREAM COMMUNITY INFORMATION

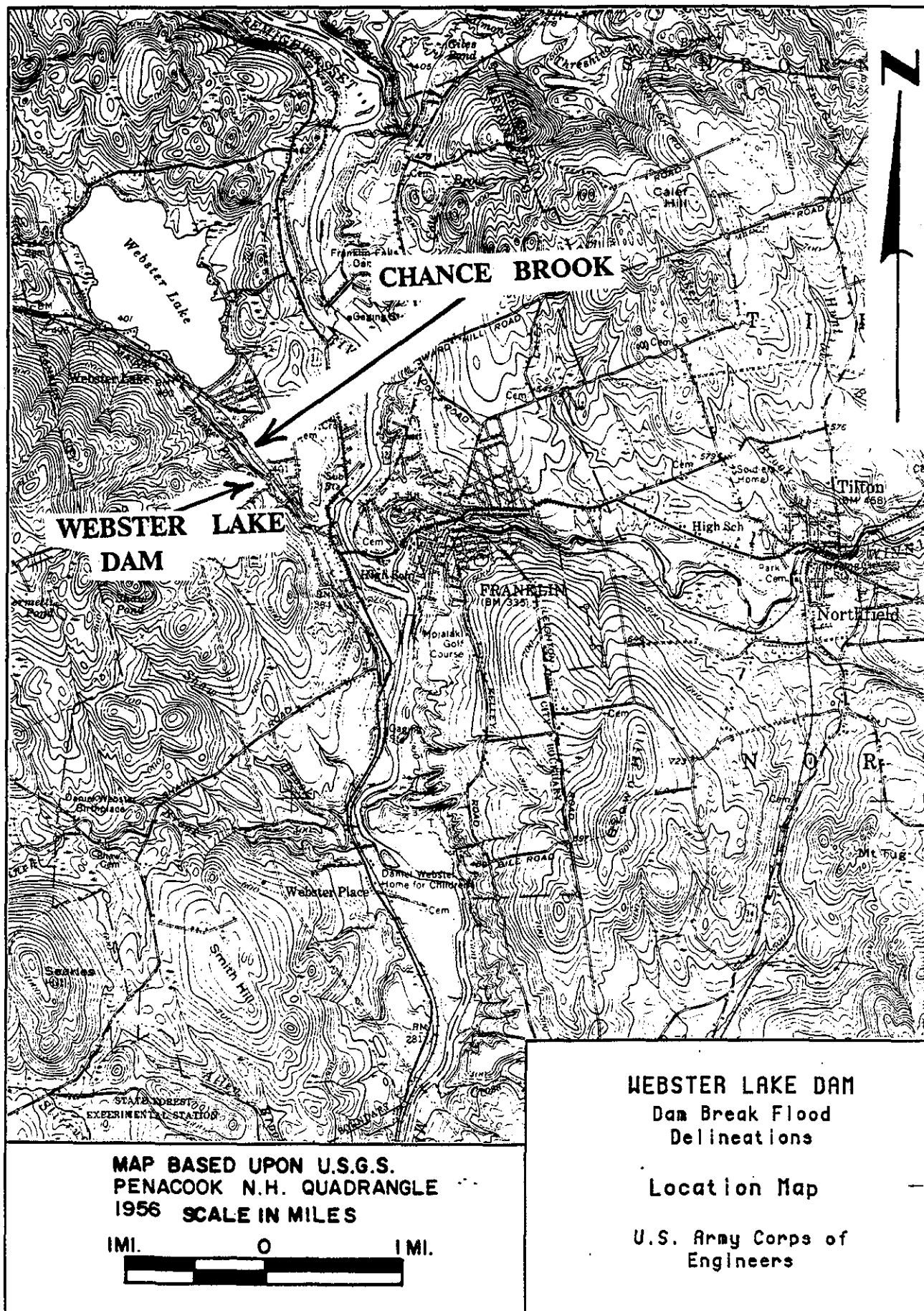
The City of Franklin is located in northern Merrimack County, in central New Hampshire. It had a 1980 population of 7,901, according to U.S. Census Bureau data. Franklin has an area of 9,200 acres (29 square miles) and is 19 miles from Concord, New Hampshire. It is known for being the birthplace of U.S. Statesman, Daniel Webster. The City of Franklin has small businesses such as antique shops, as well as, other larger commercial enterprises. The city's economy is also supported by textile manufactures and other large industries.

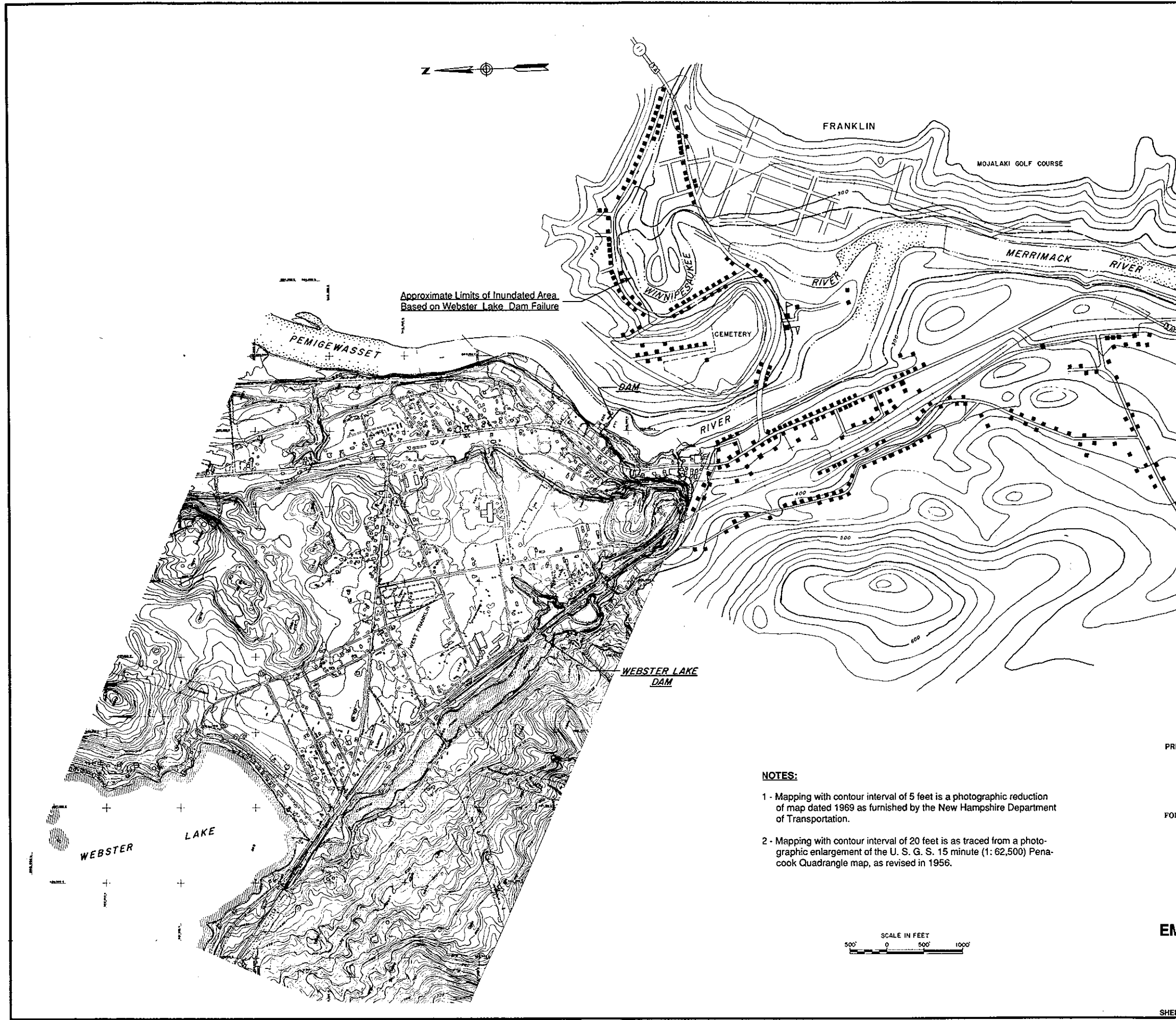
6. DESCRIPTION OF INUNDATED AREAS

- a. REFERENCES. The inundation map for emergency action plan (Plates 2 and 3) is developed from the March 1986, Webster Lake Dam Dam-Break Flood Analysis, using; (1) a reduction of 1969 mapping furnished by the New Hampshire Department of Transportation, and (2) an enlargement of the 15 minute (1:62500) Penacook Quadrangle map as revised, by the USGS, in 1956.
- b. DESCRIPTION OF IMPACTED AREA. The area of probable inundation in the event of a dam break at Webster Lake Dam is wooded and residential, but also has many small commercial businesses. There is also some industrial activity along Routes 3A and 11.

The main roadways within the probable inundation area are Webster Street, Routes 3A and 11 (which are the same road in the area of interest), and Route 3 - down toward Webster Place. There is a small dam downstream of the Webster Lake Dam, on Chance Brook, behind Oak Laminates Company on Route 3A.

Chance Brook flows into the Pemigewasset River, which has its confluence with the Winnepesaukee River, in Franklin, creating the Merrimack River.

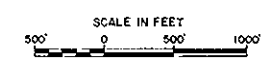




Approximate Limits of Inundated Area
Based on Webster Lake Dam Failure

NOTES:

- 1 - Mapping with contour interval of 5 feet is a photographic reduction of map dated 1969 as furnished by the New Hampshire Department of Transportation.
- 2 - Mapping with contour interval of 20 feet is as traced from a photographic enlargement of the U. S. G. S. 15 minute (1: 62,500) Penacook Quadrangle map, as revised in 1956.

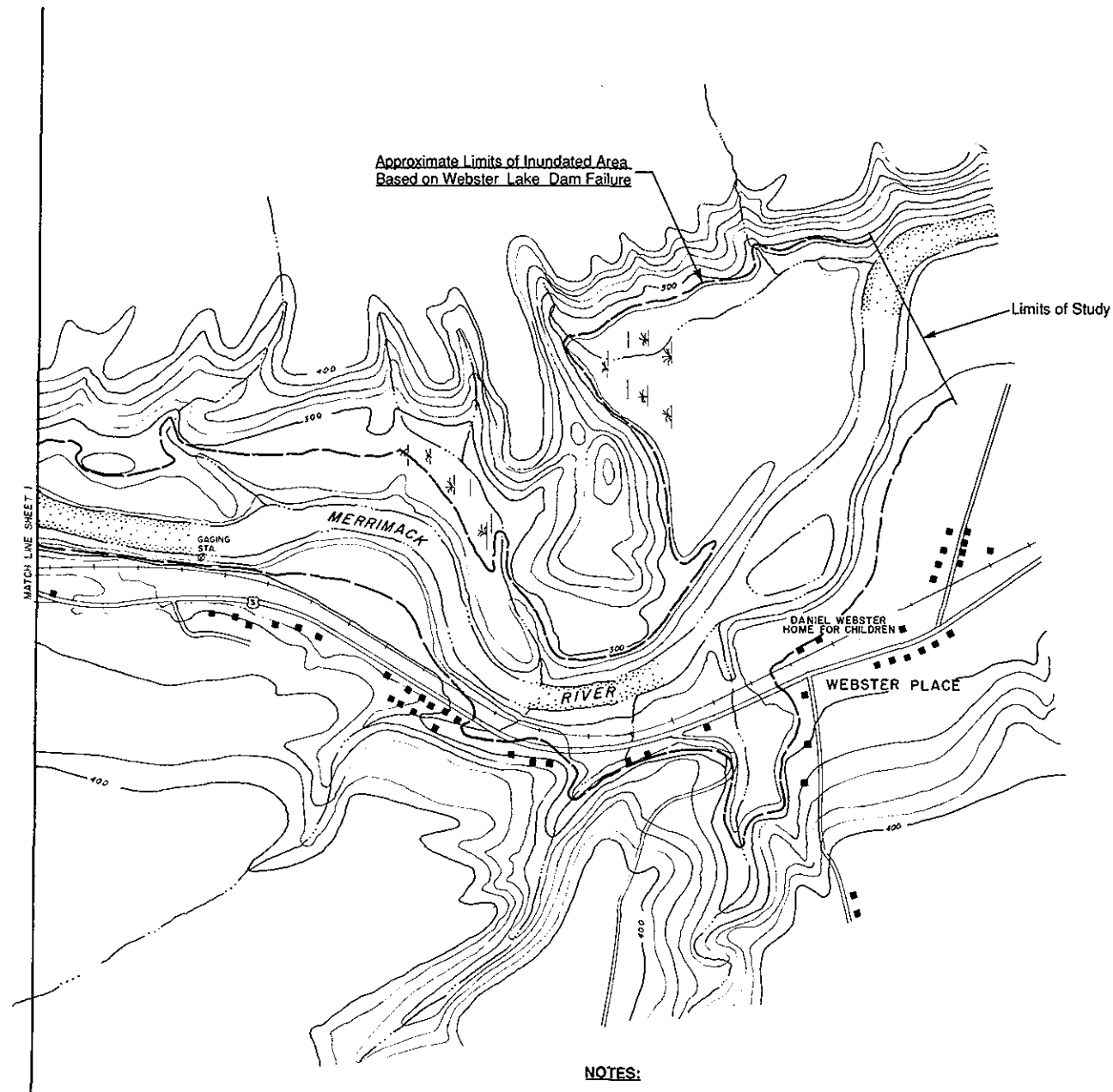
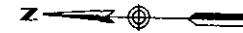


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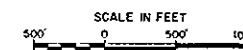
**INUNDATION MAP
FOR
EMERGENCY ACTION PLAN (EAP)**

**WEBSTER LAKE DAM
N. H. NO. 87.15**



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SHEET 2 OF 2

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